



High-performance materials from Kuraray

Solutions for a sustainable future

kuraray

Possible starts here

Achieving what no-one else can

Innovations for a modern world

We have been setting new standards in speciality chemicals with our intelligent solutions for unique products for almost a century. We use our passion and innovative spirit to develop exceptional materials that unfold their potential in countless products – always with goal of meeting our customers' high demands and making a positive contribution to society and the environment.



We are Kuraray: we make high-performance materials possible

Kuraray is a speciality chemicals company headquartered in Tokyo that operates worldwide. We are one of the largest suppliers of polymers and synthetic microfibres and an international leader in the development and use of innovative high-performance materials.

Kuraray was founded in Japan in 1926 to manufacture and market rayon (artificial silk). The company's name is derived from the town where it was founded – Kurashiki – and rayon. Initially Kuraray's core business was fibres and textiles.

Over the years, Kuraray steadily developed: as a pioneering producer of high-performance materials, in 1950 we became the first company in the world to market a synthetic fibre made from polyvinyl alcohol. In the

following years we used our proprietary polymer and synthetic chemistry technology to develop a variety of high-performance resins.

Our subsidiary Kuraray Europe GmbH is now the biggest European producer of polyvinyl alcohol and polyvinyl butyral. Our PVB and ionoplast interlayers are used in laminated safety glass. In addition, Kuraray Europe's product portfolio includes chemical specialities, EVAL™ EVOH, activated carbon filters, thermoplastic elastomers, synthetic fibres, man-made leather and dental products. As a result, there is virtually no area of daily life where Kuraray products are not used.

Our mission: achieving what no-one else can

Kuraray has extensive experience of developing high-performance materials. Our future-oriented technologies

make us a reliable partner for companies in a wide range of sectors. Our unique expertise enables us to come up with new solutions that meet our customers' constantly rising demands. Our pioneering spirit is combined with our aspiration to produce sustainable products for a world that has a future.

With our products and technologies, we take up the biggest challenges of our time – especially climate change, the use of limited natural resources, the shortage of food and water, and pollution. We find solutions to these pressing problems. Kuraray has more than 50 different product lines, offering carefully designed products for sectors from automotive and healthcare to industrial applications.

Pioneering high-performance materials

We work on pioneering solutions around the world



KURARAY AT A GLANCE

AS OF: 2024



3%

of revenue invested
in R&D



€5 billion

revenue



12

production sites
in Europe



Founded in Japan in

1926



52

production sites
worldwide



1,000

employees in Europe



Approx.

12,000

employees
worldwide

Shaping the future

Where ideas become reality



A culture that encourages fresh ideas

As a global specialist for high-performance materials, our goal is to develop innovative products. To enable pioneering innovations, we encourage creative ideas and new approaches. We know that not every idea is crowned with success but that does not prevent us questioning the familiar and sharing new findings with one another.

The Innovation Networking Center

Together with our business partners, we develop smart solutions to complex problems. For that, we focus on networks such as our Innovation Networking Center, which connects teams of experts with customers. Customer requirements, sector insight and soundly based knowledge of research and technology are combined so that together we can make a sustainable future a reality. Regardless whether the aim is to reduce energy consumption or develop and use recyclable materials, we take up these and other challenges with our customers to develop products that make a difference.



The possibilities of a networked world

At Kuraray, we specifically use digital processes to bring about a sustained change in how we manufacture products. To do that, we have introduced a special organizational unit for digital transformation (DX) and information technology (IT). Our business and service units work hand in hand to develop innovative and efficient digital solutions. In this way, we do not simply drive technological progress, we also create clear value for our customers and partners.

5G research project: mixed-reality headsets for remote maintenance

The 5G mobile communications standard with its rapid data transmission rates opens up new opportunities for industry. A unique nationwide project at our site in Troisdorf, Germany, therefore examined how 5G technology

can enhance efficiency and sustainability in production. Seven cross-sector partners worked on this project, which received funding of €3.6 million from the Federal Ministry for Digital and Transport (BMDV). One focal area was the 5G toolbox to enable remote maintenance of facilities using a mixed-reality headset. Real-time sensors should enhance production quality and make more efficient use of resources such as energy. In collaboration with ZWi-Technologies, Kuraray also tested an intelligent control system for fork lifters. The project received scientific support from RWTH Aachen and the Fraunhofer Institute for Applied Information Technology (FIT).

The 3P model

A plan for sustainability



Planet

Our primary goal is to reduce greenhouse emissions in our production. We are working towards storing unavoidable CO₂ and reusing it as a raw material. We are also focusing on saving energy and switching to renewable energies, which we want to achieve as soon as possible. With this strategy, our aim is to reduce our global CO₂ emissions to net zero by 2050. Additionally, we are prioritizing the protection of water resources, the purification of water and air through filtration and the prevention of waste.



Product

Recyclability and the circular economy are major challenges when developing products. At Kuraray, we use all our expertise to offer innovative, modern products that meet these demands by using renewable raw materials and developing solutions for sustainable packaging. Valuable contributions to environmental protection come, for example, from our high-performance EVAL™ EVOH barrier resins and our activated carbon products that help purify air and water and support the removal of "forever chemicals" (PFAS). We are also working to make our purchasing and supply chain management more sustainable. That includes demonstrating corporate responsibility in respect of human rights and environmental protection and complying with the obligations of the German Act on Corporate Due Diligence in Supply Chains.



People

As a chemical company, we pay special attention to safety. We can only maintain the trust of society and our employees if we have a clear focus on environmental protection, health, process safety and avoiding accidents. Our occupational health management is geared to a safe and healthy working environment. Our leadership and HR work are also designed to be sustainable. We want the people who work for us to remain productive, healthy and motivated in the long term.

High-tech for everyday applications

Solutions for every sector



Architecture and construction

- **Laminated safety glass** with TROSIFOL® and SentryGlas®
- **Reinforced materials** with KURALON™/ KURALON™ K-II fibres
- **Mortar, plaster and tile adhesives** with KURARAY POVAL™
- **Concrete and cement** with isoprenol additives
- **Sealants** with SEPTON™
- **Underfloor heating pipes and barrier membranes** with EVAL™ EVOH and KURARAY POVAL™
- **Wallpaper coatings** with EVAL™ EVOH
- **Vibration damping** with HYBRAR™
- **MOWITAL®** for lightweight materials



Automotive

- **Automotive glazing** with TROSIFOL® and SentryGlas®
- **Instrument panels** with SEPTON™, HYBRAR™ and PARAPET™
- **Protective paintwork and automotive repair coatings** with KURARAY POVAL™ and MOWITAL®
- **Adhesives and sealants** with SEPTON™ and Kuraray Liquid Rubber; high-strength structural adhesives with MOWITAL®
- **Air filters** with activated carbon
- **Cables, hoses, grommets and gaskets** with SEPTON™
- **Engines, fuel tanks and batteries** with EVAL™ EVOH, GENESTAR™ and KURARAY POVAL™; MOWITAL® for solid-state batteries
- **Tires** with Kuraray Liquid Rubber
- **MOWITAL®** for high-performance ceramics



Cosmetics

- **Ingredients** made from isopentyldiol (IPD) and squalane
- **Thickening agents** made of SEPTON™ thermoplastic elastomer
- **Water-soluble films** with MonoSol
- **Industrial fibres** made from KURAFLEX™ and FELIBENDY™
- **Skin-care products** with various KURARAY POVAL™ LV grades



Healthcare and pharmaceuticals

- **Cements, adhesives, composites and ceramics from Kuraray Noritake Dental:** CLEARFIL™, PANAVIA™ and KATANAX™
- Isoprene-based **pharmaceutical auxiliaries**
- **Personal care and hygiene products** with SEPTON™
- **Tablet coatings** with KURARAY POVAL™
- **Pharmaceutical packaging** with EVAL™ EVOH
- **Medical nonwovens** with FELIBENDY™ and KURAFLEX™
- **Medical films, adhesives and tubing** with SEPTON™ and HYBRAR™
- **Intermediates** for pharmaceutical active ingredients/excipients



Agriculture

- **Seed coatings, spray additives, binders, soil conditioners and fertilizer sticks and foils** with KURARAY POVAL™
- **Land silos, barrier silage wrap films, hermetic bags and fumigation films** with EVAL™ EVOH
- **Packaging for agricultural chemicals** with MonoSol
- **Agricultural intermediates** with isoprene derivatives and MTHP



Textiles and design

- **Sizes for textile production** with KURARAY POVAL™, ELVANOL™ and Kuraray Liquid Rubber
- **Protective clothing** with VECTRAN™
- **Fibre blends** with KURALON™ K-II
- **Textiles and accessories** with CLARINO™ and AMARETTA™ microfibre alternatives to leather
- **Binders textile printing** with MOWITAL®



Paper and packaging

- **Paper coating and finishing** with KURARAY POVAL™ and EXCEVAL™
- **Coatings for ink-jet paper** with KURARAY POVAL™ K/R polymers
- **Packaging materials** with EVAL™ EVOH, EXCEVAL™, KURARAY POVAL™, MonoSol, MOWITAL® and PLANTIC™
- **Printing inks for flexible food packaging** with MOWITAL®



Water treatment

- **Filters for industrial and municipal wastewater treatment plants, water filters for private households and air filters for vehicles**
- **We also market activated carbon**

Our attributes are high-quality products, competent technical service and a flair for innovation. Close and trusting customer relationships make it possible for us to develop exceptional products that are precisely tailored to the needs of customers and end-users.



Always moving ahead

Innovating with versatile materials

Kuraray has a wide variety of product portfolios featuring different high-performance materials that are used in almost all areas of daily life. Using our pioneering technological competence, we have developed many unique products: from man-made leather and environment-friendly coatings for paper products to novel fibres made from liquid crystal polymers. An overview of our innovations illustrates the versatility of our product expertise.



MICROFIBRE SUEDE MADE FROM CLARINO™

The CLARINO™ brand stands for one of the first products of its type, launched by Kuraray. Under this brand name, Kuraray manufactures the world's finest speciality products made from microfibre suede. These versatile, high-quality products are an inspiring and efficient alternative to genuine leather for fashion and technical applications, offering top quality and maximum freedom of design, including colours, processing and surface finishing. CLARINO™ articles can be stamped, perforated, embossed, printed, laminated and dyed almost any colour. CLARINO™ grades are produced without fluorinated hydrocarbons. Their wide-ranging applications include accessories, garments, sports equipment, entertainment electronics, decorative objects and furniture. To enable the next step towards a more sustainable future, some CLARINO™ materials are already made from 100 percent recycled fibres.



DENTAL PRODUCTS

Kuraray Noritake Dental Inc. develops wide-ranging dental materials based on polymer chemistry and ceramic technologies to preserve and reconstruct teeth with a very natural aesthetic. Kuraray Noritake offers high-quality products such as PANAVIA™, CLEARFIL™ and KATANA™ that have an excellent reputation in Japan and worldwide.



CLARINO™:
the world's first
man-made leather



EVAL™:
product type first
marketed by Kuraray



MonoSol

Water-soluble, biodegradable MonoSol films based on polyvinyl alcohol are used in many sectors of industry. They enabled the introduction of unit doses for washing machines and dishwashers and thus revolutionized the detergents industry. The film completely dissolves upon contact with water, does not contribute to microplastic pollution and is designed to be environmentally safe. The film naturally breaks down into water and carbon dioxide when decomposed by bacterial microorganisms. MonoSol film meets the OECD 301b criteria for biodegradability, which are widely used by regulatory agencies worldwide to ensure safety.

KURARAY POVAL™

KURARAY POVAL™ is the tradename for the polyvinyl alcohols (PVOH) produced by Kuraray worldwide, which are used in a broad spectrum of applications. Today, KURARAY POVAL™ polyvinyl alcohols (PVOH/ PVA) are key starting products in many industries – from the production of speciality papers, PVC plastics, food packaging, textiles, cosmetics and ceramics to construction materials, emulsions and adhesives. The physical and chemical properties of PVOH make it incredibly versatile, improve the quality of products and enhance the efficiency of production. PVOH is soluble in water, resistant to organic solvents and has excellent film formation, tenacity, elasticity and high dispersing capacity. Thanks to its very good environmental compatibility and health tolerance, KURARAY POVAL™ is a key to the development of sustainable solutions.



EVAL™ (EVOH RESIN)

This is another product type that was first brought onto the market by Kuraray – under the EVAL™ EVOH brand name. It provides an excellent barrier to gases, aromas and solvents. Through EVAL™ EVOH, Kuraray supports the food and healthcare industries in the development of packaging that protects quality and gives the products a long shelf-life. Recyclable multilayer structures with EVAL™ EVOH can meet the most stringent hygiene conditions, food contact standards and regulations. The outstanding barrier properties of EVAL™ EVOH make it the product of choice to preserve freshness and quality, protect the environment and meet top efficiency requirements in industry and the automotive sector. A layer that is just one millimetre thick creates a functional barrier equivalent to a ten metre thick wall of plastic. A small amount of EVAL™ EVOH can therefore have a big impact.



TROSIFOL®:
the most extensive
portfolio of solutions
for laminated glass

INTERLAYERS

TROSIFOL® PVB is the world's most extensive range of innovative solutions for laminated glass, including structural and functional interlayers for safety and security, acoustic insulation and UV protection. For decorative applications, TROSIFOL® PVB includes tinted interlayers, digitally printable films and other innovative products for interior design. Our products therefore offer completely new possibilities for aesthetic, structural and functional design.

SentryGlas® ionoplast is an interlayer for safety glass. It has five times higher strength and 100 times higher stiffness than conventional PVB films, excellent weather resistance, and can be used without the need to cover the edge of the safety glass. Its high residual load-bearing capacity enables unique structures and designs for glass buildings.

ACTIVATED CARBON

Kuraray is a world-leading producer and supplier of activated carbon and innovative services to improve production processes and ensure safe cleaning of the environment. We offer an effective solution to remove impurities and toxins such as PFAS from drinking water, wastewater, air and gas. Kuraray's treatment service includes mobile carbon filters that simplify the use of activated carbon technology. Thermal reactivation allows sustainable recycling and re-use of activated carbon. High-quality activated carbon is used in industrial processes and special applications such as masks, protective clothing and electric storage facilities. Kuraray is the only company that specializes in the production of activated carbon from coal, coconut, wood and textiles.

VECTRAN™ (INDUSTRIAL FIBRE)

VECTRAN™ is a high-tech multi-filament yarn spun from liquid crystal polymers. It is five times stronger than steel and has a unique combination of impressive properties. That makes it the optimum choice to meet particularly high specifications. VECTRAN™ is used in a wide range of applications – including aviation and the aerospace industry.

ISOPRENE MONOMERS

Kuraray offers a wide range of market-leading isoprene derivatives for use as additives, speciality solvents and intermediates in the production of other chemicals. The product range extends from multifunctional ingredients for various industries to consumer goods and industrial applications. Here are some examples: isopentyldiol from Kuraray can improve the quality and feel of cosmetic products, MMB can be used to produce safe detergents and make air fresheners more effective, IPEMA is the solution for faster UV curing and MPD brings polyurethane to the next technical level. All products are alternatives to established products that involve health risks.



PLANTIC™:
the biopolymer that
preserves flavors



PLANTIC™ (BIO-BASED BARRIER PACKAGING MATERIAL)

PLANTIC™ is a high-performance product comprised of 80 percent renewable raw materials. It is available as a film or resin. Due to its high gas barrier properties, this bioplastic can be used in packaging that seals in aroma and keeps out oxygen. PLANTIC™ is ideal for MAP packaging for food with a short shelf-life. In addition, this renewable material is excellent for packaging dry foods such as coffee and tea as well as dry petfood.

EXCEVAL™

EXCEVAL™ is the trade-name for modified halogen-free polyvinyl alcohol from Kuraray developed especially to meet requirements for water resistance. EXCEVAL™ is the polyvinyl alcohol of choice for water-resistant emulsions, D3 and D4 adhesives and types 1, 2-JIS and ASTM-ANSI adhesives thanks to its excellent water resistance, which is achieved without additional crosslinkers.

MOWITAL® (POLYVINYL BUTYRAL RESIN)

MOWITAL® is the trade-name for a wide range of different polyvinyl butyrals (PVB) marketed by Kuraray. These products have outstanding adhesion and film-forming properties, high bonding power and excellent optical transparency. They are soluble in many organic solvents and can be combined with many reaction partners. MOWITAL® is mainly used as a binder in printing inks, coatings, anti-corrosion primers and high-performance ceramics.

ELASTOMERS

Kuraray's thermoplastic elastomers (TPEs) are environment-friendly, free of PVC and do not need additional plasticizers. TPEs are used in a wide range of applications, including several plastic composites for everyday products such as toys, toothbrushes, medical tubing, sports equipment and sealants. In addition, Kuraray Liquid Rubber is found in high-performance tires.



Our responsibility

A company to be proud of

We want to make a contribution to society and the environment through our products, technologies and services. That is part of our self-perception – and has been since Kuraray was established in 1926.



For around a hundred years, our culture has been dominated by a deep commitment to innovation and pioneering technologies for the good of society. We continuously strive to access new areas of business to help improve the environment and the quality of life. We are guided by the motto of our company's founder, Ōhara Magosaburō: "All the wealth gained from society should be returned to society."

Sustainability and environmental protection are therefore vital for us. Kuraray is actively committed to protecting the environment and developing technologies that contribute to this goal. Our pioneering spirit should guide us into a sustainable world that benefits everyone.

**"All the wealth
gained from society
should be returned
to society."**



**ŌHARA
MAGOSABURŌ**
Kuraray's founder

Moreover, we want the improvements we make to have an impact within our company as well as beyond it. As a modern company, we therefore encourage and support our employees, for example, through extensive personal and professional development opportunities.

In the spirit of our founder, we also promote an appreciative, inclusive and diverse corporate culture and are committed to the communities in which we operate.

Working at Kuraray

Make the difference!

Together we can shape
a better future!

We encourage our employees to be proactive. Everyone at Kuraray can continue their personal development and make a contribution to a better future through their work. Find out more about our stimulating job offers and career opportunities at [kuraray.eu](https://www.kuraray.eu).



"I really enjoy working on projects that transform our company – and great colleagues make my work even more fulfilling."



YURIKO TANIDA

Global Talent Development & Succession
Planning Manager



"Our innovative R&D projects are closely aligned to the real needs of our customers. They are therefore directly related to applications in many sectors and generate clear added value."



MORITZ BAIER

Head of Technical Service & Development



"I make a difference at Kuraray by working on the ongoing development of pioneering products for safety glazing."



ALI SAKHI

Apprentice in materials testing

An attractive workplace

Benefits at Kuraray

Employee satisfaction is important to us – because motivated employees who feel valued and happy generate innovative ideas.

As well as attractive remuneration, we offer a wide range of additional benefits focused on health, careers and work-life balance.



Health

The health and safety of our employees are very important to us. As part of our KuraSafe programme, our managers ensure that working hours are adhered to and endeavour to avoid exposing employees to overwork.

As well as being offered preventive healthcare, employees have access to external experts via our EAP hotline if they have private or work-related problems. Moreover, we support the health of our employees through continuous improvements to physical, psychological and social working conditions.



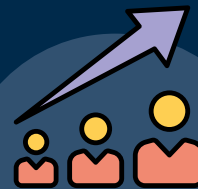
Remuneration

As a successful chemical company, Kuraray offers an attractive and fair remuneration package, including a range of collectively agreed and additional social benefits. Examples are supplementary nursing care insurance, a pension plan, bonus payments and long-service benefits. We offer talented employees the chance to take on responsibility at an early stage and encourage their development.



Career and family

We have many programmes to support our employees at various stages in their lives. For example, we grant an additional one-year parental leave period to those with young families. In collaboration with the "Terminal for Kids" organization, we also help find childcare places. Moreover, we offer a range of support for those caring for relatives so they can achieve a healthy balance of working and family life, even in difficult phases.



Personal development

Kuraray's varied business units and international locations offer many opportunities for development. We talk regularly with talented staff to offer them individual support and encourage their development. We invest in continuing professional development, enable foreign assignments and encourage employees to take part in international projects. As well as succession planning for management positions, we offer attractive career opportunities for experts.

Social engagement at Kuraray

Together we make the world a little better



Through our social commitment, we want to connect with people and make a meaningful impact. That benefits all sides: the many initiatives and projects we support because of their exemplary commitment to social, cultural and ecological causes and the people who are committed to doing good. Therefore, it is important to us that our employees are actively involved.

We pay special attention to activities close to our locations. Since 2012 we have organized a Social Day, where employees support, for example, a childcare facility in Troisdorf and a

primary school in Frankfurt am Main. So far, volunteers have undertaken tasks such as painting walls, repairs and small sustainability projects. Our lab days give school students insights into our company and answers to their questions about careers in the chemical industry.

We encourage sustainability by organizing special focal months such as "Sustainable September". This programme brings us into dialogue with our customers and includes talks by experts as well as events to raise awareness and motivation for sustainable action in everyday life.

In addition to such events, we make a variety of donations every year. For example, our employees take part in the "Christmas in a shoebox" charity campaign and the J.P. Morgan Corporate Challenge. These are fun, promote a community spirit and help people in need. As a company and as a team, we genuinely stand up for our values and put them into practice.

We can't create the future alone!

Interested in shaping the future with us? We offer varied career opportunities for committed and talented people – find out more on our website!

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